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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SECURITY INFORMATION

COUNTRY Czechoslovakia

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SUBJECT 1. Production of Calcium Carbide
2. Production of Carborundum

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1. Manufacture of calcium carbide (CaC_2) in Czechoslovakia is concentrated in three plants. The largest and most important of these is at Sokolov, near Karlovy Vary. Production on a smaller scale is carried on at the Gottwald Works (formerly Svit) in Otrokovice, near Gottwaldov. There is also a small plant at Lobkovice, near Melnik, which produces calcium carbide.

2. The North Bohemian Chemical Works (Severoceske chemicke zavody) in Sokolov (formerly the Spolek pro chemickou a hutni vyrobu) has its own coal mine. The production process consists of the electrical fusion of limestone and coke to obtain calcium carbide. Sixty percent of this product is immediately processed into cyanamide ($CaCN_2$). For the most part, the calcium cyanamide is used as an artificial nitrogen fertilizer, whereas the remainder is employed for making ammonia, which is then oxydized into nitric acid. The other 40% of the calcium carbide produced goes straight to the coalfields, where the carbide is used in acetylene lamps in the mines. Indirectly, then, the entire operation of coalfields in Czechoslovakia depends on the Sokolov plant.

3. The yearly capacity of the plant is approximately 60,000 tons of CaC_2, of which about 35,000 tons are processed into calcium cyanamide by the action of nitrogen on red-hot CaC_2 according to the Frank-Caro method. The daily output of coal in the mine attached to this plant varies around 500 tons. This is a key plant of great importance to the entire Czech economy.

4. The Gottwald Works was constructed at the end of World War II in Otrokovice, (P50/C11), near Gottwaldov. The yearly production of calcium carbide there amounts to about 5,000 tons; it is dissociated into acetylene in extinguishing plants. From acetylene, by way of "Aldol" - condensation to butadiene (divinyl) and polymerization under the catalytic action of metallic sodium - synthetic rubber is produced by the Buna rubber process. The present output of synthetic rubber in this plant is about 2,000 kg. per week, besides certain less important synthetic by-products. Manufacture is organized on modern principles and the equipment is good. The process is under continuous development by the Bata Chemical Research Institutes, where roughly 200 scientific and

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technical workers are employed.

5. The third calcium carbide factory is an older and smaller plant in Lobkovice (O 51/F 80), near Melnik, with a yearly capacity of 500 tons. The product is for general consumption, without any particular technical purpose.

6. In connection with the production of calcium carbide, it is worthwhile to mention the manufacture of carborundum, i.e. silicon carbide. The sole plant producing carborundum is situated in Stare Benatky (O 51/G 01), near Mlada Boleslav. The greater part of the carborundum produced is used in making tools, including grinding machines of all kinds and machine tools. It is also used in electrotechnology and metallurgy as a heat-resistant material. Its hardness is approximately 9.5.